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ABSTRACT

The effects of education on social cohesion at the societal level were examined. First, a theoretical analysis and critique of models in the existing international and comparative literature on education, social capital, and social cohesion was conducted. The analysis resulted in development of a new hypothetical model relating skills distribution to social cohesion. Cross-national, quantitative research techniques were used to test the model on aggregated data for 15 countries from the World Values Survey, International Adult Literacy Survey, and Interpol crime statistics. The analysis established that societal cohesion is different, although related, to the community-level cohesion typically investigated in social capital research. The new "distributional" model therefore hypothesized a relation between education and societal cohesion based on distribution of educational outcomes rather than average levels of education. The analysis based on the new model established that Germany, Portugal, and the United States have the lowest scores on social cohesion, and the Netherlands, Denmark, and Norway have the highest. Measures of inequality in educational outcomes were higher in English-speaking countries and in some northern continental and Nordic countries. The analysis confirmed the hypothetical relationship between educational equality and societal cohesion. (Eight figures/tables are included. The bibliography lists 93 references. An explanation of the country indicators' derivation is appended.) (MN)

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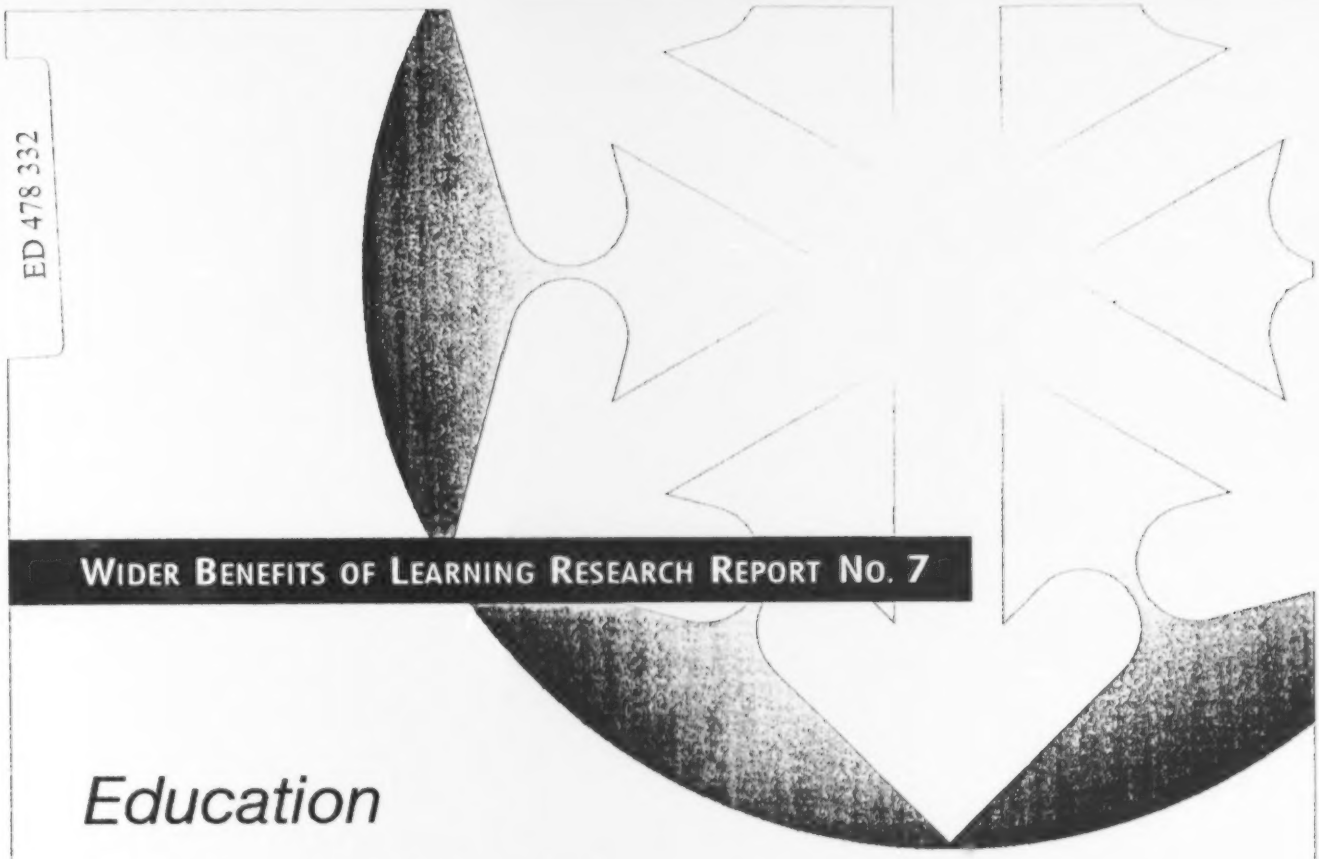

WIDER BENEFITS OF LEARNING RESEARCH REPORT NO. 7

Education Equity and Social Cohesion: A Distributional Model

Andy Green,
John Preston and Ricardo Sabates

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Andy Green, John Preston and Ricardo Sabates

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The Centre for Research on the Wider Benefits of Learning (WBL) was established in 1999 by the then Department for Education and Employment, now the Department for Education and Skills (DfES). The Centre's task is to investigate the social benefits that learning brings to individual learners and to society as a whole. The Centre is a joint initiative between the Institute of Education and Birkbeck College, University of London.

The views expressed in this work are those of the author and do not necessarily reflect the views of the Department for Education and Skills. All errors and omissions are those of the author.

Executive Summary

1. This report – the first from the Centre's comparative strand of research – focuses on the effects of education on social cohesion *at the societal level*. The research involved two elements which are reflected in the two parts of this text. The first was a theoretical analysis and critique of models in the existing international and comparative literature on education, social capital and social cohesion. This led to the development of a new hypothetical model relating skills distribution to social cohesion. The second part of the research used cross-national, quantitative techniques to test the model on aggregated data for 15 countries from the World Values Survey (WVS), the International Adult Literacy Survey (IALS) and Interpol Crime statistics.

Finding from the Literature Review

2. The main conclusion from the literature review and theoretical analysis is that societal cohesion is different, although related, to the community level cohesion typically investigated in social capital research. Consequently, the relationships between education and societal cohesion differ from those between education and social capital and require different forms of analysis. These typically involve the use of cross-national comparative methods.

3. Social capital refers to the networks, relations of trust, and patterns of reciprocity that facilitate collective action and bond members of particular communities. However, countries which are rich in social capital at the community level are not necessarily cohesive at the societal level. Social capital does not always translate into societal cohesion since intra-community bonding does not necessarily lead to inter-community harmony. Some types of association may be beneficial for wider societal trust and harmony, others may not be.

4. The review of the literature, and statistical analysis of the data, both suggest that the properties associated with social capital – association, trust, engagement and tolerance – do not in fact co-vary across countries and cannot therefore represent a coherent way to measure social cohesion.

5. Education has been shown to be a powerful generator of social capital in some contexts, being the most powerful predictor of individual propensity to trust, join and engage in politics, even when controlling for other factors such as age, gender and income. However, individual level correlations between education levels and social capital indicators do not hold when using aggregated data at the societal level. As the literature and the statistical analysis show, *there is no significant relationship between mean levels of education in a society and levels of trust or tolerance.*

6. Relationships between education and social outcomes at the individual level may be inconsistent with the macro-social effects for a number of reasons. Firstly, some of the individual benefits may be positional so that more education for all does not increase the societal benefits. Secondly, there may be contextual factors impacting on social cohesion at the societal level which overwhelm education effects and which are not captured in individual level analysis since they only appear as constants. The particular form of the welfare state in a country might be in this category. Thirdly, some factors may be implicated, such as distributional properties, which are invisible at the individual level and therefore cannot be addressed in individual level models.

7. The existing literature shows close cross-national relationships between educational inequality and income inequality, and between income inequality and social outcomes such as crime and health. On the basis of these known relationships a new 'distributional' model was developed which hypothesises a relation between education and societal cohesion based on distribution of educational outcomes rather than average levels of education. It was assumed that if there were a relationship it would run through income distribution.

Findings from the Cross-National Statistical Analysis

8. Using the data from the WVS, principal components analysis was used to construct a single aggregate measurement of social cohesion at the societal level. This 'social cohesion index' included measures of trust in others and institutions, civic cooperation (not condoning cheating on taxes and fares) and violent crime. A measure of skills distribution was also constructed from the IALS data. Educational inequality is measured as a test score ratio of the mean score in prose literacy for those who have completed tertiary education compared with those who have not completed upper secondary education. Income inequality was measured using traditional Gini coefficients. Univariate and multivariate linear regression and robust regression analyses were used to test the validity of the model. The statistical analysis suggests the general validity of the distributional model but also produces some unexpected findings.

9. Using this combined measure of societal cohesion, the countries with the lowest scores on societal cohesion were found to be Germany, Portugal and the USA, whereas those with the highest scores are the Netherlands, Denmark and Norway. The UK comes only slightly above the USA and thus in the lower part of the range in relation to societal cohesion.

10. In terms of skills distribution, the results show that measures of inequality in educational outcomes are rather higher in English speaking countries such as the UK, the USA and Canada than in some northern continental and Nordic countries such as Germany and Sweden.

11. The main finding confirms the hypothesised relation between educational equality and societal cohesion. *There is no significant relation between mean levels of education and societal cohesion.* However, excluding the outliers Norway and Germany, *there is a negative and significant correlation of -0.765 between societal cohesion and education inequality.* This relationship is also confirmed as significant using linear regression analysis and robust regression analysis. In the later case, a 0.1 change in education inequality, say from 1.2 to 1.3, will decrease the social cohesion index by -0.583 units.

12. The results also show *there is a negative relationship between income inequality and social cohesion.* Once again, excluding Norway and Germany, *a negative and significant correlation of -0.616 exist between these two variables.*

13. Multivariate analysis was used to examine societal cohesion as a function of education inequality and income inequality. The relationship between income inequality and societal cohesion has the expected negative sign, and so did education inequality. However, only education inequality has a significant linear negative impact on the social cohesion index.

14. The results show that there is a linear relationship between education inequality and the index of social cohesion that is not mediated by income but they do not verify that educational inequality affects social cohesion through its effects on income distribution. This is probably due to the co-linearity between education inequality and income inequality which overshadows the effect from income inequality. *However, what the results do suggest is that whatever the links through income equality, educational inequality also has effects independently on social cohesion.*

Conclusions

15. No strong claims to have demonstrated a causal relationship between educational distribution and societal cohesion are made here. The number of units involved in the statistical analysis is too small to draw hard conclusions from the correlations and, in any case, if the correlations are judged to be sound, causality may run in different directions.

16. Nevertheless, the analysis does suggest that educational distribution may be a very significant influence on societal cohesion in certain contexts. This does not mean that other models of educational effects on social capital are wrong. What it does suggest is that different models are needed to understand the societal effects. The traditional model of educational effects on social cohesion through socialisation and value formation may still hold and it was not possible to test this here with the existing data. It can be suggested that both the socialisation effect and the distributional effect are highly significant to understanding educational impacts at the societal level and that both require further research.

17. The findings here have important policy implications. Existing policies focus on developing the individual resources and competences which will help to build social capital and community cohesion. However, these will not necessarily impact on cohesion at the societal level. Creating a more cohesive society is likely to require policies that are also designed to increase equality through narrowing educational outcomes.

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1. Education, Social Capital and Social Cohesion: A Theoretical Analysis

1.1 Introduction

Education is a powerful generator of social capital. According to recent research on the USA, Italy and the UK (e.g. Emler & Frazer, 1999; Hall, 1999; Nie et al, 1996; Putman, 1995; 2000), more educated individuals tend to join more voluntary associations, show greater interest in politics and take part in more political activities. They are also more likely to express trust in others (social trust) and in institutions (institutional trust), and are more inclined to 'civic co-operation' – or at least to profess that they do not condone 'uncivil' behaviour. Education is clearly not the only factor that predisposes people towards joining, engaging and trusting, but it is a powerful predictor, at the individual level, even when controlling for other variables such as wealth, income, age and gender. To Robert Putnam, current doyen of social capital theorists, *"Human and social capital are clearly related, for education has a very powerful effect on trust and associational membership, as well as many other forms of social and political participation."* (Putnam, 1995).

Precisely how education contributes towards civic engagement and social capital, and under what conditions, is not yet well understood. Rather little is known about the mechanisms through which learning influences different kinds of individual social behaviour, the contexts within which such effects occur, and how and why they change over time in different countries. Social capital theorists who have specifically addressed questions about learning, notably James Coleman, have mostly treated education as an outcome of social capital rather than as a cause. Those, like Putnam, who do take it as an independent variable have not generally gone beyond describing statistical associations between levels of education and social capital outcomes. Outside of the social capital debate, there have been some social psychologists and political scientists (e.g. Emler & Frazer; 1999; Nie et al, 1996), who have sought to provide causal explanations as to how these effects occur. However, their analyses remain largely at the level of the individual.

What none of this work has begun to do is to provide the theoretical and empirical links between education and social cohesion at the macro societal level. In fact, arguably, none of the traditions above have a conceptual apparatus designed to address this question. Writings on education and civic participation see education as providing individual resources of skills and knowledge which can facilitate certain individual social behaviours, but they tend to address societal effects through individual aggregation rather than analysis of societal institutions and cultures. Social capital theory, despite using the language of individual resources and the deliberate analogy with human capital, claims to treat the 'norms, networks and trust' that constitute its central concern as properties of social relations as well as individual attributes (Coleman, 1988). But the theory was first extensively developed by

Coleman to apply to local communities, and has arguably been subsequently most successfully applied at this level, rather than at the level of whole societies (Woolcock, 2000).

The assumption common amongst social capital theorists that countries with communities rich in social capital will also usually be more cohesive as societies is largely unexplored in the literature and highly debatable, since in reality this all depends on the norms and values of particular constituent communities and whether the different communities are at war or at peace with one another. Some countries cited in the research as having rich deposits of community social capital, such as contemporary Northern Ireland (Schuller, Baron & Field, 2000) and 1950s America (Putnam, 2000), would hardly be considered models of social cohesion on any of the traditional measures of the latter. Equally, extrapolating from individual effects to societal effects may require more than simply grossing up individuals' outcomes, since individual effects may be relative or 'positional.' Robert Nie and his colleagues (Nie et al, 1996), for instance, show that education in contemporary America can enhance political engagement for individuals both directly by raising their cognitive capacities and ability to engage effectively in politics, and indirectly, by allowing access to high status jobs and network-central positions which facilitate political influence. However, when societal levels of education rise the education effect diminishes because more educated people competing for a static number of network-central positions merely increases positional competition.

Clearly, it does not automatically follow that because education raises levels of community participation amongst individuals, it will also increase societal cohesion. Nor does it follow that the mechanisms through which learning generates community participation and social capital are the same as those by which it may help to promote societal cohesion. Yet these are rapidly becoming key assumptions of policy makers in America and the UK, who see lifelong learning as promoting social cohesion through the benefits which increased individual resources and competences bring to community renewal and social inclusion.

Social capital theory has made rapid inroads into Anglo-American social science and policy making, largely displacing – or simply conflating – earlier, more 'European' discourses of social cohesion and social solidarity. However, for all its advances in the understanding community networks, and despite the success of the theory in bringing the 'social' back into dominant neo-liberal discourses of politics and economics (Schuller, Baron and Field, 2000), there may also be dangers in forgetting the insights of some of the earlier traditions which treated cohesion as an explicitly societal phenomena. Social capital and social cohesion are not necessarily the same thing.

The analysis here seeks to put the relationship between education and societal social cohesion back in the centre of the picture. This is done firstly through a critical review of some of the existing literature on education and social capital which points to the

limitations of individual level analysis of what are fundamentally societal issues. Secondly, some alternative models are outlined for understanding how education impacts on social cohesion in different societies, drawing on an analysis of some of the aggregated cross-national data on skills, income distribution and an index of social cohesion that includes various individual indicators. The argument suggests a causal mechanism between education inequality and social cohesion, which can be approximated by a linear function. For the sample of countries in this study, a highly unequal skill distribution, was found to have a negative impact on social cohesion. The report concludes by proposing further research in the area of social cohesion and education.

1.2 The Historical Origins of the Debate about Education and Social Cohesion

How education impacts – at the societal level – on social cohesion and social solidarity is hardly a new question. Historically, it has been a primary concern not only of various social movements and state policies, both of the 'Left' and the 'Right', but also of mainstream social theory, from Emile Durkheim down to Robert Merton and Talcott Parsons. Given the historical amnesia of much contemporary social science, these antecedents are worth briefly recalling.

As a theoretical and political concept, social cohesion has clearly taken diverse forms, from the authoritarian and nationalistic to the liberal, communitarian and social democratic versions that have tended to prevail in western states during the past half century. The role of education in promoting social cohesion has also been construed in a multitude of ways by different historical groups, political ideologies and state regimes. Crudely put, in nineteenth century Western Europe dominant social/political groups, whether of liberal or conservative orientations, tended to see education as a force for social order, whilst subordinate classes – and more particularly radical labour movements and revolutionary groups – tended to celebrate its potential for collective improvement through raising class consciousness and forging political solidarity amongst progressive groups (Simon, 1969). In the twentieth century, education has been mobilised in equally diverse ways in support of class or ethnic solidarism, nationalism and democratic citizenship in its various forms (Brubaker, 1992; 1996; Delanty, 2000; Jensen, 1998; Maxwell, 1996).

When mass public education first appeared in northern Europe and America during the era of state building in late eighteenth and early nineteenth century, it was seen primarily, at least by the dominant social groups, as a means of building integrated national polities with cohesive national identities. The national education system first emerged as an instrument of state formation, providing an effective means for training state functionaries, promoting loyalty and social order amongst the people, disseminating dominant national ideologies and languages, and accustomising populations to the new regulative regimes of the nascent modern bureaucracies (Boli, 1989; Green, 1990, 1997; Kaestle, 1983; Weber, 1979). Later, say from the mid-

nineteenth century, education become important for providing the skills and knowledge needed for the 'second', science-based, industrial revolution (Hobsbawm, 1969) and the civic attitudes deemed essential for maintaining stability as franchises and democratic rights were extended. As social historians, Ramirez and Boli (1987) write, *"European states became engaged in authorizing, funding and managing mass schooling as part of an endeavour to construct a unified national polity"*.

Contemporary advocates of mass education, from the 'old world' of aristocratic Europe to the 'new world' of America, almost invariably justified the massive and unprecedented exercise of state intervention as a necessary and critical part of nation building. Noah Webster, Federalist educational campaigner and author of numerous popular dictionaries and spelling books in the American Early Republic, argued that education was a necessity for developing the American 'national character' which, in a land of immigrants and new institutions, was 'not yet formed'; Andrew Lunt, a vocal Democrat supporter of public education in the later Jacksonian period, proclaimed that education was the 'very bulwark of the republic' and the 'pillars' on which American democracy was supported (Kaestle, 1983). Northern continental Europe was equally, though often initially less democratically, concerned with education as nation building. Baron Dubin, writing in Prussia in 1826, claimed that, *"Practically all modern nations are now awake to the fact that education is the most potent means of development of the essentials of nationality"* (Fuller & Robinson, 1992).

From a later and more democratic vantage point, and less specifically concerned with issues of national identity, Emile Durkheim provided the first systematic theorisation of the historical role and social function of mass education precisely in terms of social integration, "*Society*," he wrote, *"can only exist if there exists among its members a sufficient degree of homogeneity. Education perpetuates and reinforces this homogeneity by fixing in the child, from the beginning, the essential similarities that collective life demands"* (Durkheim, 1977).

Durkheim wrote as a liberal socialist republican in late nineteenth century France (Lukes, 1973), but his theories left a complex legacy informing both 'Left' and 'Right' notions of education and social order. Social democratic traditions in continental Europe continued through next century to stress the importance of schooling for social solidarity and democratic citizenship, most notably in the Nordic countries (Boucher, 1982). Various strands in twentieth-century conservative thought, and particularly the tradition of 'romantic' conservatism which Raymond Williams traced from Burke and Coleridge down through Ruskin, T.H. Green and Michael Oakshot (Williams, 1958), have also emphasised the importance of education to social cohesion, in this case with the emphasis on maintaining the 'organic community' with its stable social hierarchies and more narrowly conceived notions of national values. The educational campaigner and philosopher of aesthetics, Roger Scruton, most notably adopted this position in his diatribes against multicultural education at the time of the 1988 Education Reform Act in the UK (Hillgate Group,

1987). At least one major strand in twentieth century western sociology – the tradition of Parsonian functionalism – continued to focus on education and the transmission of the normative values.

In the post second world war period, newly independent states, particularly those in East Asia, continued to regard education as an important vehicle of nation building (Inkeles and Sirowy, 1983; Green, 1999; Gopinathan, 1994; Hill and Kwen Fee, 1995). However, generally speaking, in the advanced western states, this aspect of schooling became gradually less emphasised. This was partly, at first, because of the sharpened post-war awareness of the dangers of nationalist appropriations of education, and then later because of the difficulty of finding adequate ways of conceptualising national identity in the more culturally pluralist societies of the global age (Castells, 1997; Hildebrand and Sting, 1995; Touraine, 2000). At the same time, education became increasingly associated with the goals of economic development. Skills formation came rapidly to overshadow citizen formation as the primary goal of public education in most developed states (Green, 1997). The rise of human capital theory in the 1960s provided academic justification for the more economically instrumentalist views of education which were had already gained prominence amongst western policymakers, particularly in English-speaking countries. Even as the discourse of lifelong learning became ubiquitous in the 1990s, its main rationale remained, at least in the more neo-liberal states, the goal of economic competitiveness (Coffield, 2000).

The tide now appears to be turning, to a degree at least. The European Commission, with its model of 'social Europe' and a *raison d'etre* of integration, has always maintained a concern with social solidarity and the ways in which this may be promoted by education. The recent Lifelong Learning Memorandum (EC, 2001) arguably pushes this further into centre stage. Various countries have been reviewing their citizenship education policies – Australia, France, the UK, and more or less continually in the East Asian states (Osler and Starkey, 2001). The New Labour Government in the UK has also shown an increasing preoccupation with problems of social exclusion and concomitantly with the social – or wider, non-economic – benefits of learning (Green and Preston, 2001). These policy shifts can no doubt be traced to growing concerns, throughout the advanced economies, about the socially fragmentary effects of globalisation, and the symptoms of community breakdown and social disorder that seem to accompany rising consumerism and individualisation (Beck, 2000; Green, 1997; OECD, 1997).

Education and social cohesion has thus re-emerged into the policy agenda. However, this time in new clothes. The dominant policy discourse, at least in the Anglo-Saxon countries, is no longer about social cohesion and social solidarity, and the impacts of education on these, but rather on community renewal and impact of education on 'social inclusion' via the labour market. The dominant theoretical discourse has changed as well. Theories of social integration have been superseded in current theory by the burgeoning new discourse of social capital. In both cases – in terms of policy

and theory – there has been a significant shift from the macro societal perspective on social cohesion (whether of the Left or Right) to the more micro individual or community level – analysis. The role of education in shaping 'social' outcomes is re-established, but the social is now conceived in a different, more individualised, way.

1.3 The Rise of Social Capital Theory

Social capital theory is heir to a long American tradition of liberal, democratic, localist thinking which dates back at least to de Tocqueville's 1836 essay 'Democracy in America' (de Tocqueville, 1956; Foley & Edwards, 1998; Showronek, 1982; Skocpol, 1996). This remarkable text, for all its deafening silences on class and racial divisions, provided an extraordinarily prescient commentary on social customs and civic society in the New World, celebrating the vibrant associational life of the Jacksonian North as a democratic alternative to the étatism of contemporary continental Europe. It left behind a potent legacy of anti-state civic ideology in American political culture that is now being re-appropriated, ironically – and significantly – at precisely the point when many fear that associational life there is in serious decline. Its return has been by a circuitous route.

The notion of social capital was first extensively elaborated in Pierre Bourdieu's theoretical work (Bourdieu & Passeron, 1977; Bourdieu, 1980) as one of a cluster of concepts, including human capital and cultural capital, which sought to disentangle the various resources and processes which underpin the acquisition and transmission of power and status in modern capitalist societies. Bourdieu's subtle formulations, though at times conceptually blurred and fuzzy, were carefully contextualised both socially and historically. However, they have been all but forgotten in recent developments of the field within Anglo-Saxon economic and sociological thought, where the dominant approach has been the more decontextualised universalism of methodological individualism. Two strands have been most prevalent in the rise of the social capital research industry.

The first is the tradition inaugurated by James Coleman in his influential 1988 essay (Coleman, 1988) 'Social Capital in the Creation of Human Capital' which sought to illustrate how customary and apparently non-rational social behaviours could be understood as attempts to overcome economic externalities and market failures. Drawing on his previous work on social exchange theory, and working alongside Gary Becker at the University of Chicago (while the latter was simultaneously applying human capital logic to new areas of non-market behaviour), Coleman sought to extend rational choice theory further into the social domain by analysing the role that trust and social reciprocity played in resolving problems of collective action. Coleman was careful to limit his analysis to specific, bounded, local communities rather than to whole societies, arguing that social capital was primarily a 'public good' and a relational property of people in particular communities, rather than a portable or 'fungible' individual asset (Brown & Lauder, 2000).

Following Coleman, a number of economists have applied the concept of social capital to a growing range of social contexts and issues, including mortality (Kennedy et al, 1998), political participation (DiPasquale & Gleaser, 1999), economic growth (Knack & Keefer, 1997), and judicial efficiency (LaPorta et al, 1997), among others. In one account at least (Fine, 2001), this development can be seen as part of the evolution of the economics profession as it seeks to overcome the acknowledged limitations of its own traditional paradigm based on rational agents, utility maximisation and equilibriating markets, largely divorced from their historical, cultural and institutional contexts. The latest wave of new neo-classical economics, and particularly the 'information-theoretical' approach associated with Joseph Stiglitz's former work at the World Bank, attempts to overcome some of these limitations by understanding non-market conforming behaviours in terms of rational responses to information asymmetries and deficits.

Social capital has thus come to be seen by these economists (and the sociologists working with them) as an immensely flexible conceptual tool which can be used to explain a wide array of social phenomena – previously ignored or assumed away by economists – in a way which can be made consistent with market economic logic. In the process, and by virtue of a single concept, whole tracts of the social geography have been re-appropriated for economics without reference to any of the theoretical maps developed by generations of sociologists. Michael Woolcock, who manages the social capital website at the World Bank, notes the positive and negative sides of this: He writes, "*several critics, not without justification, have voiced their concern that collapsing an entire discipline [sociology] into a single variable [social capital]...is a travesty, but there are others that are pleased that mainstream sociological ideas are finally being given their due at the highest levels*" (Fine, 2001).

The second strand of recent social capital theory is primarily associated with the work of the political scientist Robert Putnam, who moved from his early work on civic association and local government in Italy (Putnam, 1993) – where social capital appears as an essentially post-hoc theory in the coda to the book – to a full scale study of the trends in social capital in the USA (Putnam, 2000). His work has been immensely influential, partly because of his exhaustive compilation of data on various social capital measures and partly because his liberal communitarian message about the power of civic association is highly palatable to market oriented governments and commentators seeking politically acceptable solutions to global problems of social fragmentation. His analysis and policy message are both, however, based on a paradox.

In 'Making Democracy Work' (1993), he argued that the superior performance of local government in the northern regions of Italy was due to the higher reserves of social capital accumulated there over thousands of years. These were seen, following Coleman, as essentially the bi-product of other historical developments and cultural movements. In 'Bowling Alone: The Collapse and Revival of American Community' (2000), his recent study of social capital in the USA, he seeks to show both that social

capital suffered a precipitous decline in a mere 30 years after the late 1960s, and that it is ripe for renewal.

The contention that social capital accumulates historically at snail's pace but can be dissipated very rapidly is somewhat curious from an historical point of view, and would certainly have surprised Putnam's mentor, de Tocqueville, whose greatest work, 'The Ancien Régime and the French Revolution' (1955), was devoted to showing how even revolution failed to expunge the legacies of the Ancien Régime in France, in fact building on centralised statism that was its hallmark. As historians frequently remind us, whilst institutions can be suddenly and radically transformed, at least on the surface, cultures change very slowly. Equally contradictory is Putnam's optimism about the possibilities of a socially willed reprise of social capital in America, given the earlier adherence to Coleman's notion of social capital accumulating almost involuntarily as a bi-product of other processes. The antinomies of Putnam's title and theme about collapse and revival appear both naïve and politically expedient in the final essay on the possibilities of communitarian revival. Cassandra and Pangloss both, Putnam can apparently appeal to a wide policy audience, but he has found more critics amongst his academic readers.

1.4 Putnam's Paradoxes and the Limits of Social Capital Analysis

Putnam defines social capital as the, "*features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives*" (Putnam, 1995). These objectives are not always laudable, and Putnam has increasingly acknowledged the 'dark side' of social capital (Schuller, Baron & Field, 2000), but for the most part he still treats the concept normatively as a positive basis for enlightened community and active democracy. In the positive civil society scenario, a number of characteristic attitudes and behaviours, including association, volunteering, donation, political engagement, trust and tolerance, are seen to work together in a virtuous spiral to produce desirable collective outcomes. "*Other things being equal,*" Putnam writes (2000), "*people who trust their fellow citizens volunteer more often, contribute more readily to charity, participate more often in politics and community organizations, serve more readily in juries, give blood more frequently, comply more fully with their tax obligations, are more tolerant of minority views, and display many other forms of civic virtue.*" How these behaviours are connected is not always clear, and Putnam acknowledges that causality for individuals can run in different directions, but his claim is that the evidence (which he does not cite) weighs on the side of joining forming the basis for trust, rather than the reverse. For Putnam, as for de Tocqueville, what counts most is the vibrancy of associational life – the 'social networks' from which arise 'the norms of reciprocity and trustworthiness' (Putnam, 2000).

Education has a powerful effect on social capital, being the strongest predictor of individual associational membership, trust and political participation (Putnam, 2000).

According to Putnam, the US data show that the last two years of college attendance make twice as much difference to trust and group membership as the first two years of high school, irrespective of gender, race and generation. Highly educated people, says Putnam, "*are much more likely to be joiners and trusters, partly because they are better off economically, but mostly because of the skills, resources, and inclinations that were imparted to them at home and in school*" (Putnam, 2000).

Despite rising levels of education, however, social capital in America is in decline, according to Putnam's analysis in 'Bowling Alone'. On all his measures of membership, trust, political engagement and voting, there has been a steady erosion since the late 1960s which applies across genders, ethnic and social groups and educational levels. These declines, according to Putnam, cannot be explained by urbanisation, mobility, time pressures or the changing roles of women. They are primarily generational effects reflecting the passing of the socially engaged New Deal generation and its replacement by generations of so-called 'boomers' and 'Xers' who have more privatised lifestyles and spend more time watching TV. America, the quintessential land of association has, in the course of two generations, become disassociated.

At the level of the individual, Putnam's analysis of social capital has much to commend it. He has compiled a huge mass of data based on a wide array of indicators which shows, fairly conclusively, at least for contemporary America, that there is a relation between individuals trusting, joining and becoming politically engaged, and that education relates to all of these, either directly or indirectly. He has also charted the trends over a substantial period, showing that the behaviour of the American public is indeed changing in significant ways. Several critics have contested his analysis of declining levels of association, but if you accept his (largely fixed) choice of indicators, the evidence is clear and comprehensive. However, for all this, and despite his claims to be providing an account social change in America, he has said very little about American society as such, how it hangs together or fails to hang together, and how education impacts on social cohesion at this societal level. A number of obvious problems stand out and illustrate the weakness of Putnam's approach in providing explanations at the societal level using tools more appropriate for the analysis of individual and community behaviour.

Firstly, if association is the key to social capital – and by extension social cohesion – as Putnam maintains, why is it that the USA, which ranks highest on levels of membership amongst a wide range of countries in repeated WV surveys (Inglehart, 1990), is so palpably lacking in social cohesion on any of the more conventional measures like crime and inter-ethnic conflict? Secondly, why, if education is such a strong determinant of individual joining and trusting, is social capital declining so fast in America when education levels are still rising, and most with the younger generations who are precisely the most educated? Thirdly, if the decline is due to factors other than education, which on Putnam's account it must be, how do these impinge at societal and individual levels? Putnam finds it difficult to answer these

kinds of questions with conviction because his argument, which is pitched at the level of individual behaviour, lacks the cultural, institutional and political dimensions that are critical to understanding societal change.

Putnam argues that associational membership is the key to social capital and social cohesion. But what evidence exists for this? In contemporary America it is known that individuals who join more also tend to trust more and to be more politically engaged than those who do not. It is also known that in various other contemporary societies the correlation holds at the individual level (Brehm & Rahm, 1997; Hall, 1999; Stolle & Rochen, 1998). However, if you extend the analysis to a larger set of countries, as Newton and Norris (2000) have done using pooled data for 17 countries in the WVS, the association at the individual level becomes extremely weak, and no correlation at all can be found at the societal level (see also Knack and Keefe, 1997; Norris, 1998). America has exceptionally high levels of membership relative to other countries but exceptionally low levels of voting and only moderate levels of trust (Inglehart, 1990).

Putnam's contention, which is at the heart of social capital theory, that these various characteristics 'form a coherent syndrome' may apply at the level of the individual in some countries but the proposition does not hold for all. As Stolle and Rochen (1998) show in relation to Sweden, Germany and the USA, context, including the role of the state, may have an important bearing on how these characteristics interact. Consequently, there may also be no relation at all between joining and trusting at the societal level. It may be the case that individuals who join more also trust and engage more politically in some contexts, but there may be independent factors that determine the levels of each of these separately at the societal level which are far more powerful than the associations at the individual level. This may mean that some countries have both high levels of trust and moderate levels of joining relative to other countries, as seems to be the case for instance in some Nordic states, whilst others, like the USA, have relatively high levels of joining and lower levels of trust (Inglehart, 1990). If these core social capital characteristics do not co-vary across countries it suggests that they have little meaning as a single factor at the societal level.

The primacy accorded to association in Putnam's account of social capital is contentious in other ways. His main concern is how much people associate and join, and his analysis of this is largely quantitative. However, quantitative approaches may well miss the key issue for social cohesion. What do people join for and how does it enhance social integration? Putnam acknowledges that there are different kinds of association and that those that encourage 'bridging' between groups and associations and with individual outsiders are more important to social capital than those which merely encourage in-group bonding. This is an important point. As Mark Granovetter has shown (1973), weak but extensive ties may have more beneficial social effects than the strong ties of dense but relatively closed networks. Societies with excessively close and closed family ties, may tend towards the 'amoral familism' described by Banfield (1958) which may be neither trusting nor innovative in societal terms. Equally, as Mancur Olson famously argued (1971) for some of the victorious allied

powers after WW2 by contrast with their defeated but reconstructed rivals, states with long established and powerful interest groups – and thus high levels of association – may become prone to sclerosis and slow growth.

In terms of institutional and societal behaviour, there is no necessary relationship between associational membership and social trust. It depends entirely on the types of organisations involved and their objectives. Active and long term membership of some types of organisation may incubate trust through reiterated social interactions as predicted in game theory (Fukuyama, 1999; Granovetter, 1973; Axelrod, 1986); this may be a generalised trust if the organisations are relatively 'encompassing' and heterogeneous, and if they are pursuing collective public goals which go beyond the narrow interests of small groups of people. Under certain historical circumstances major political parties or coalitions of parties might fit this description, constructing what one tradition describes as national popular ideologies or hegemonic social relations (Gramsci, 1971). Trade unions may also at times play this role, especially where they are large general or industrial unions representing disparate occupations at different levels, as opposed to craft unions and professional associations representing narrower interests. Likewise, major Churches and religions, where they are broadly ecumenical (members of evangelist churches in the USA trust less than the average, whereas members of the broad mainstream Churches trust more – see Putman, 2000).

On the other hand, membership of exclusivist organisations with self interested goals may encourage trust amongst their members but positively erode trust in society at large (Newton, 1999; Norris, 1998). Extremist or racist organisations, for instance, may well produce high levels of internal bonding but be guaranteed, at the same time, to generate distrust from their members to people outside and towards their members from people outside. Timothy McVeigh and his co-conspirators in the Oklahoma bombing were all members of bowling clubs, which provides a salutary and somewhat ironic commentary on Putnam's thesis (Fine, 2001).

The crux of the matter in terms of social cohesion is whether associations foster in their members trust in the generality of people rather than simply in other members, and whether this increment to the pool of public trust is not counterbalanced by any diminution in trust amongst those outside generated by the existence of the same organisation. Putnam's analysis is simply unable to evaluate this, which weakens his argument about the overall trends in American society. His case is that the gross levels of membership in the US are declining and that this must be bad for trust and ultimately for democracy. Others have argued just as plausibly that levels of association are actually quite stable in the USA, but that people are joining different types of organisation whose membership levels Putnam does not measure, and which may be less conducive to social cohesion (Fukuyama, 1999). On Putnam's own evidence (and that of Warde et al. for the UK in 2001), the types of membership that are declining fastest are precisely those involving the large, encompassing, multi-interest associations, such as the party and union. Membership growth tends to be in single function or single issue organisations, like sports clubs and self-help and

environmental groups, or within lobby-type organisations, which, by definition, are serving narrow interests. What matters for social cohesion is the type and aims of association rather than the quantity.

In a recent study of social cohesion and fragmentation in modern societies Francis Fukuyama (1999) considers the changing nature of associational life and the apparent paradox, in America, of the co-existence of relatively high levels of association and growing levels of distrust and social fragmentation. The answer, he says, *"has to do with moral miniaturization: while people continue to participate in group life, the groups themselves are less authoritative and produce a smaller radius of trust. As a whole, then, there are fewer common values shared by societies and more competition amongst groups."* Whether or not one shares Fukuyama's socially conservative analysis of the causes of societal fragmentation, he has certainly pointed to a dilemma at the heart of social capital theory and one which underlines the importance of societal explanations of social cohesion.

Putnam's analysis remains ultimately at the level of quantifying individual behaviour. From his perspective he is unable to provide meaningful measures of cohesion in society at large, let alone to provide meaningful explanations of changes over time. Where there should be analysis of cultural and ideological shifts, of changes in economic and social structures, and of new institutional arrangements, there are simply extrapolations made from individual associations. True to his liberal, individualist tradition, he overlooks the importance of the role of the state and institutions in providing the structural basis for social cohesion (Skocpol, 1996), remaining largely silent on the effects on social relations of two decades neo-liberal government, with rising consumerism and individualism and the gradual dismantling of the welfare apparatus. Despite his own empirical demonstrations of the clear cross-regional correlations between social capital and income equality, he fails to explore the connections in America between declining social capital and rising inequality and social conflict. In Putnam's hands, social capital provides a distinctly romantic view of society devoid of power, politics and conflict (Edward and Foley, 1998; Skocpol, 1996).

What both strands of social capital thinking have in common, and the reason why they can relate so readily to mainstream paradigms in neo-classical economics, is that, despite ostensibly dealing with questions of collective action and community, they are equally wedded to a liberal, individualist view of society. Social capital economists ultimately still adhere to a methodological individualism that seeks to explain all social phenomena in terms of individual preferences, rational calculation and utility functions, assuming universal – and hence a-social and a-historical – principles of utilitarian human behaviour. As Fine and Green note (2000), history only enters into mainstream economics as 'path dependence,' 'random shocks' and 'unexplained initial conditions,' while society is absorbed as exogenous givens, limiting but not constituting elected individual preferences. Putnam and his followers, whilst making passing reference to culture and institutions, also fundamentally locate and

operationalise their analyses at the level of individual behaviour, despite acknowledging the relational nature of social capital. Neither is able to address the broader questions of social cohesion and the effects of education on it.

2 Testing the Distributional Model

2.1 A Comparative Societal Approach to Social Cohesion

An alternative approach to social cohesion is to view it from a societal perspective. This assumes that cohesion in society at large involves not only bonding and trust within particular groups and communities but also between them; and that this entails some common sense of citizenship and values (Maxwell, 1996). Inevitably, therefore, it is concerned with questions of power and resource distribution, conflict and conflict resolution and the state forms, institutions, ideologies and cultures that shape these in any given country. Although regional differences within countries will be important, many of the factors that most determine societal cohesion in a given country will be structural and national in nature and will require analysis at the societal level. These are often best analysed through comparative qualitative methods (Ragin, 1981) which give purchase on the effects of different national level factors. Where quantitative approaches are used, they will generally involve cross-national comparisons that use countries as the units of analysis because many of the national contextual or 'ecological' factors will be invisible to individual level.

Econometricians are often sceptical of cross-national statistical analysis. The limitations of datasets often mean that there are too few units of analysis (countries) to run reliable statistical regressions (Ragin, 1981). Also, cross-national correlations will sometimes produce results which conflict with the results of individual level statistical analysis and which will be dismissed as 'ecological fallacies' (Wilkinson, 1996). According to methodological individualism, phenomena which cannot be explained statistically as the result of the accumulation of individual actions do not exist. However, this simply ignores the fact that many societal phenomena are simply indefinable and hence unmeasurable at that level – as is notably the case with income inequality. Alternatively, they remain unobserved because they exist as constants. What this means, essentially, is that these contextual factors cannot be used statistically to explain variations between individuals and therefore cannot be entered into the models. However, this should not necessarily imply that they are not major determinants of individual behaviour, nor that they are not highly significant in providing the contexts in which other variables, which can be observed, work. Statistical analysis may be satisfied when it can use individual level variables to understand 10 percent of the variance in individual behaviour in a given national population. However, much larger variations in behaviour between individuals in populations across different countries may remain quite inexplicable.

A cross-national societal approach to social cohesion is likely to differ from an individual level human capital or rational choice perspective in other important ways. It will start from the assumption that all relations are context bound, that is to say specific to historical times and places and the structures and environments that pertain to them (Edwards & Foley, 1998). In terms of the social effects of education, this would imply an a priori scepticism towards any propositions about universal

relationships based on time and place specific data, such as the often cited association, for instance, between education and tolerance. From a comparative and historical point of view such ideas are very easily refuted. It would also imply taking institutional and cultural factors seriously. The new institutional economics has begun to take institutional structures into account, as classical political economy always did before the marginalist movement narrowed economists' concerns. However, cultural factors are still massively underestimated in modern economics and rational choice sociology, appearing, if at all, only as individual preference, which of course, is precisely what culture is not. Lifestyle and culture are not synonymous.

Comparative, cross-national analysis, on the other hand, is almost bound to attend to the importance of cultures since there is overwhelming evidence that countries do in fact differ substantially, regularly and enduringly on a whole variety of cultural measures, not least to these concerns, in terms of aggregate levels of trust, association, political engagement and tolerance. As Ronald Inglehart (1990) tersely concludes from his exhaustive study of data for twenty five countries in the WVS, "*the peoples of different societies are characterized by enduring differences in basic attitudes, values and skills: In other words they have different cultures.*" These cultures are not monolithic and nor are they immutable. However, in given times and places they act as important determinants of social and political behaviour which cannot be left out of account.

To provide an obvious example, more educated people in most contemporary western societies tend to be more tolerant, other things being equal, than less educated people, as countless research studies have shown (see Nie et al, 1996). However, this does not mean more educated societies, past or present, are always more tolerant, nor, even, that educated people are more tolerant in all societies. Nazism arose in Weimar Germany, one of the most highly educated countries on earth at the time. National Socialists won student elections in 8 universities, at a time when the Nazis won only 18 percent of the vote in national elections (Abramson & Inglehart, 1994). German Protestants were on average more educated than Catholics but they were also more likely to vote for the National Socialists, who received support from all social classes. This may mean that education did not have any positive effects on tolerance in Germany then. Alternatively, it may simply mean that any positive education effects were overshadowed by other factors. Therefore, in the analysis that follows any findings are restricted to the set of countries and time space where results were drawn from.

2.2 Education and Social Cohesion: A Cross-National Societal Perspective

In what follows a comparative, cross-national approach is used to develop and perform preliminary tests on an alternative model for the effects of education on social cohesion at the societal level. This serves primarily illustrative and exploratory purposes at this stage. It is not possible to progress to the point of providing any

institutional and cultural explanations for the posited relations at this stage, but the hypotheses are based on the forgoing theoretical analysis and are constructed in such a way that they are amenable to this kind of qualitative causal explanation.

Firstly a set of variables is identified that co-vary at the national level and which the literature suggests may form a valid combined indicator of national level social cohesion. Secondly, a model is proposed and tested for the effects of education inequality on social cohesion at the national level, using aggregated data for a sample of countries from various existing cross-sectional datasets, including the WVS and the IALS.[1] The dataset is a cross-sectional set of fifteen economically advanced democracies for which data is held on social cohesion aggregates, skills and income distributions for 1996. These include: Australia, Belgium, Britain, Canada, Denmark, Finland, Ireland, the Netherlands, Norway, Poland, Portugal, Sweden, Switzerland, the USA and Germany. It is important to point out that the generalisation of results is limited in this report only to those countries with similar characteristics in 1996 to those countries of the sample. The results mainly apply to OECD members in 1996 and not to developing or transition economies.

The model hypothesises that education affects national levels of cohesion not only through socialisation but also through the indirect effects that the distribution of educational outcomes has through income distribution. Put simply, *countries with education systems producing more equal outcomes in terms of skills and qualifications are likely to have more equal distribution of income and this in turn promotes social cohesion*. The model is theoretically plausible because there is already considerable evidence (Nickell and Layard, 1998; OEACD/Statistics Canada, 2000) for a range of developed countries that skills distribution and income distribution correlate highly at the national level, and that cross-nationally income distribution is powerful predictor of social outcomes such as crime (McMahon, 1999) and health (Wilkinson, 1996).

[1] National values for distributions of educational outcomes are calculated from the International Adult Literacy Survey data since these provide direct measures of skills which are deemed better indicators of education that the years of schooling measures commonly used by human capital theorists. Social attitude measures for a sample of countries are taken from the World Values Surveys of 1990 and 1995 and from national crime statistics (from Interpol). Gini coefficients for income inequality in different countries come from World Bank Statistics. Appendix 1 explains how the figures were derived for the main and expanded datasets.

2.3 Measuring Social Cohesion

The analysis starts from the proposition that social cohesion can only be measured at the societal level with indicators which are appropriate to that level and with sets of indicators which do actually co-vary and cluster at the national level. Social capital theory uses measures of association, trust, civic co-operation and political engagement to represent social capital at the individual/community level. However, as the discussion above suggested, these do not form a coherent syndrome at the national level. Some countries with comparatively high levels of association have moderate to low levels of trust (USA) and others with lower levels of association (Denmark and other Nordics) have high levels of trust (see Inglehart, 1990). Furthermore, on the basis of analysis of trends, there are some countries (e.g. the USA) where trust and association appear to be declining in tandem (if you follow Putnam at least) and others where they are moving in different directions (e.g. the UK – see Hall, 1999). Analysis by Knack and Keefer (1997) of data on 29 market countries in the WVS showed that there was no correlation between levels of trust and levels of association across countries after controlling for education and income. Norris (1998) finds the same. However, using an aggregated factor based on answers to a larger number of questions about honesty and civic co-operation in WVS, Knack and Keefer (1997) do find there is a correlation between trust and civic co-operation values.

Taking trust (general and institutional), civic co-operation and crime as indicators of national level social cohesion arguably makes good sense. Violent crime is a traditional negative indicator that would be readily recognised as valid by policymakers and people in general in many cultures. One could hardly imagine it being said high levels of violent crime were a marker of social cohesion at the societal level, although it might be argued that they are compatible with certain kinds of group solidarity. Civic co-operation is also intuitively connected to social cohesion, at least in principle. People may sometimes massage their tax returns, break speed limits and jump the lights at crossings, but they will generally admit that these are not socially responsible things to do, and lament their increasing prevalence. Social and institutional trust seem to go together since trusting in institutions involves trusting in people (although there may be societies where ordinary people trust each other but not officials in institutions). Social trust has also proved to be a reasonably robust measure in various studies.

Repeated WVS surveys show substantial and durable differences between countries on average levels of trust (Inglehart, 1990). The WVS 'trust' question ("Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people") has been criticised on the grounds that it is impossible to know whether those answering it are expressing their trust in close friends and family or the wider society of individuals. However, a number of factors suggest that it is general trust that is being measured. As Knack and Keefer (1997) show, trust values across countries in the WVS correlate closely with the results of the Readers' Digest 'dropped wallet' test for a range of countries. They also correspond closely

with the results of Eurobarometer surveys asking individuals whether people from other specified countries are trustworthy (Ingelheart, 1990). Furthermore, the very low proportion of those expressing trust in some countries in WVS (e.g.10 percent in Brazil) also suggests that the question is not measuring narrow radius trust.

It is quite possible that cross-country variations in positive responses to the trust question are measuring simultaneously differences in both trusting and trustworthiness, but this hardly matters since trust is understood as a component of social cohesion precisely as a relational, dynamic and institutionally dependent phenomena. Trust breeds trust; distrust, distrust. Trustworthy people are likely to generate trust among others with whom they are in contact, and untrustworthy people the opposite. Societies where honesty and reliability are underpinned by social norms and institutional codes are more likely to be trusting societies because people are more likely to experience reasons to be trusting. Trust is thus measured as an individual attribute but its aggregated value points to societal features. As Alan Fox puts it: trust and distrust, "*are embedded in the rules, roles, and relations which men impose on, or seek to get accepted, by others*" (Fox, 1974).

2.4 An Aggregate Social Cohesion Measure

The aggregate measure of social cohesion here includes individual measures for general trust and trust in democracy (GENTR and DEMTR), for civic co-operation in terms of attitudes to cheating on taxes and public transport (TAXCH and TRANCH), and a measure of violent crime (CRIME). General trust (GENTR) was measured by the percentage of individuals sampled in each country who agreed that most people could be trusted when asked. Trust in government (DEMTR) was measured by the percentage of individuals sampled in each country who agreed or strongly agreed that they had confidence in their parliament (WVS question V144). Civic co-operation measures of attitudes to cheating on public transport fares (TRANCH) and cheating on taxes (TAXCH) were measured by the percentage of individuals in each country who stated that such actions were never justifiable (WVS questions V193 and V194). The measure of crime (CRIME) was obtained from Interpol statistics for 1996 (International Criminal Police Organisation, 1996), and includes the sum of homicides, robberies and violent thefts per 10,000 inhabitants. These measures, the countries used and data sources are described in the Appendix.

To generate an aggregate measurement of the concept of social cohesion, principal components and factor analysis generate more accurate scores of the multiple dimensions than other techniques. Measuring the dimensions of social cohesion is complicated by the fact that the underlying attributes are difficult to measure, and any metric for one societal dimension is likely simultaneously to pick up elements of the others. In part, this is because there are causal relationships among the dimensions (general trust may contribute to democratic trust) but also because any quantitative measure is likely to be somewhat imprecise. No single measurement can capture the concept of social cohesion fully, and no simple combination of indicators, such as an

average or sum, could capture the multidimensionality of the concept.

The defining characteristic then that distinguishes between the two models, that is factor versus principal components, is that the latter analysis assumes that all variability in the individual measures should be used in the analysis, while the former analysis only uses the variability in the measure that it has in common with the other measures of social cohesion (for example, democratic trust and general trust). Principal components as opposed to factor components are used since the aim of applying this technique is data reduction This maximises the variance to calculate the unique and interrelated characteristics of the different single indicators of social cohesion, as opposed to detection of the underlying structure; i.e. which of these individual measurements share a common variability.[2]

Principal components estimation examines the variance-covariance matrix of the underlying variables, such as democratic and general trust, civic co-operation, and crime. In order to test the marginal increase in variance explained by adding another dimension against the variance explained by randomly organising the data, the eigenvalue is used. According to Kim and Mueller (1978) an eigenvalue below 1 suggests that there is little marginal increase from adding another variable. Results from the principal components analysis suggests that there are 3 underlying components that account for 88.5 percent of the total variability of the set of individual indicators of social cohesion (Table 1).

Table 1: Principal Components Analysis: Using 'Trust', 'Cooperation' and 'Crime'

Component	Eigenvalue	Individual Variance	Cumulative Variance
1	**1.829**	**0.366**	**0.366**
2	**1.574**	**0.315**	**0.681**
3	**1.019**	**0.204**	**0.885**
4	0.434	0.087	0.972
5	0.143	0.028	1.000

Note: Principal Component Analysis aims to find the components $s_1,s_2,...,s_n$ so that they explain the maximum amount of variance possible by n-linearly transformed components. The number n corresponds to the largest eigenvalues associated with the variance-covariance matrix of the social cohesion variables, in this case $n = 3$.

A second output of the analysis is to use the scoring coefficients extracted from the 1st eigenvector and obtain the aggregate measure of social cohesion for each country.

[2] The underlying structure of the data was set a priori. By performing factor analysis the 5 original variables will be reduced to the 3 chosen factors: factor 1 for trust variables, factor 2 for civic co-operation variables and finally factor 3 for crime. But the aim here is to obtain one score variable for social cohesion using all the information.

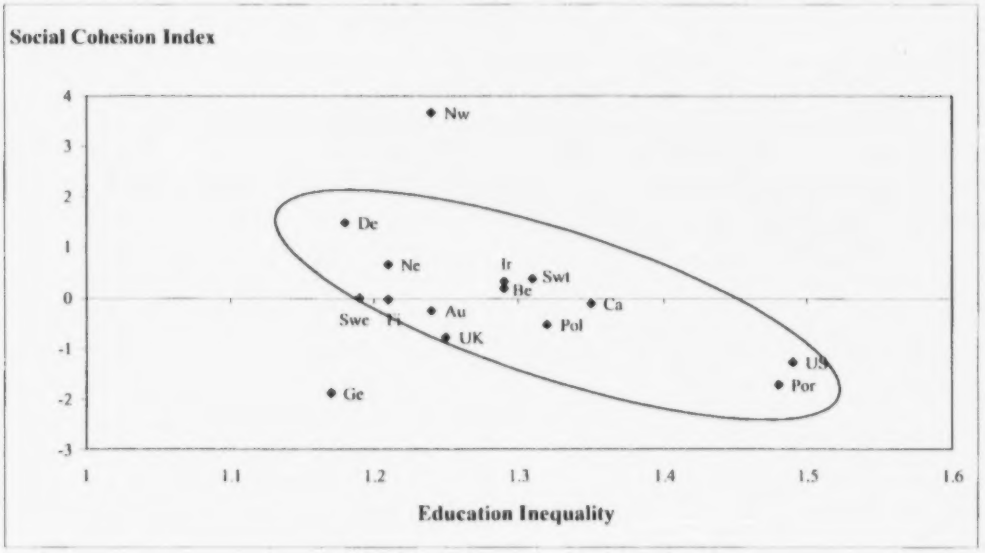
This means that a measure of social cohesion that takes into account all the indicators can be produced. Using these scores, Table A1, in Appendix 1, shows that the countries with the lowest social cohesion scores are Germany, Portugal and the USA, whereas those with the highest score of social cohesion are the Netherlands, Denmark and Norway. The UK is 4th lowest in the aggregate measure of social cohesion. This index of social cohesion is used as a dependent variable in the analysis.

In order to test the correlations across countries between education and these measures of social cohesion, some valid national measures of education are required. Years of schooling measures used in WVS, the main dataset, are rejected, because length of schooling is a poor indicator of quality of learning and skills acquired. Therefore the data on literacy in the International Adult Literacy Survey (IALS) is used. This survey has been criticised by some (Blum, Goldstein, & Guerein-Pace, 2001) for cultural bias, but it at least has the merit of attempting to provide direct measures of skill, rather than proxies such as schooling years or qualifications. One may assume that the skills that it is measuring are related to both the quantity and quality of the education received. Using IALS also has the advantage that it is measuring education levels of the whole adult population which is particularly appropriate where societal effects are being analysed.[3]

Education inequality is measured as the test score ratio (P3). This is the ratio of the mean scores in prose literacy of those who have completed tertiary education (i.e. short and long cycle first degree higher education – PROTERT) to the mean for those with only the basic level of secondary education (i.e. those who have not completed the post-15/16 upper secondary phase of education – PROLEUS). Completion here does not signify gaining a particular qualification, but it does signify having attained a given standard in each country such that a student is allowed to complete a course. A value of one indicates total equality in test scores.

[3] Duthilleul and Ritzen (2002), in an analysis on two of the authors' hypotheses on educational inequality and trust conducted subsequent to their original publication (Green and Preston, 2001), use PISA data based on tests of 15 year olds. They find a similar negative relationship between educational inequality and trust across countries, despite using cohort specific data on educational inequality. This may be due to relatively stable long term patterns of inequality in each country which allow a cohort measure to proxy for an adult population measure. However, logically it would seem safer to use educational measures of the whole adult population to assess a societal effect from educational inequality, since social cohesion relates to the relationships between all age groups.

Figure 1: Relationship between Social Cohesion and Education Inequality



2.5 Quantitative Results on Educational Inequality and Social Cohesion

Figure 1 shows the relationship between social cohesion and education inequality, where the x-axis measures degrees of education inequality and the y-axis measures the value of the social cohesion index. *The results show that measures of inequality in skills outcomes are rather higher in English speaking countries such as the UK, the USA and Canada than in some northern continental and Nordic countries such as Germany and Sweden.* The relative positions of countries here broadly confirm some of the findings on skills spreads by Brown, Mickelright and Waldmann (2000), based on analysis of IEA data for test scores at 14, the PISA study based on scores for 15 year olds (OECD, 2001) and Brown, Green and Lauder (2001) based on adult distributions of qualifications.

The results show that, *excluding Norway and Germany, a negative and significant correlation of -0.765 exists between social cohesion and education inequality.*[4] When these countries are included, the correlation coefficient decreases to -0.39 and loses its significance, thus showing how sensible are the results to the presence of extreme cases such as Norway, a country with extreme high values of social cohesion and middle range in education inequality. Also from Figure 1 there appears that the negative correlation that could be approximated by a linear function.

[4] The test for significance is $p<0.05$ for a two-tailed test.

Linear regression analysis is used to examine the relationship between education inequality and the social cohesion index. Univariate regression is used to estimate the relationship between these two variables and multivariate regression to control for other factors that could affect the relationship, such as income inequality, income level, and education attainment. Specifically, the initial hypothesis that education inequality has negative effects on social cohesion is examined. Adding income inequality, income and education attainment as explanatory variables in the estimation of social cohesion controls for:

(i) the indirect effects of education on social cohesion via income distribution;
(ii) the direct effects of education on income and;
(iii) any potential effects of high education attainments on social cohesion.

The analysis begins by estimating a linear regression of the aggregate measurement of social cohesion as a function of a constant term and education inequality.[5] Due to the small sample size, it is expected that the existence of outliers can bias the results and distort the significance of parameter estimates. Outliers will inflate the error variance and the standard errors which will in turn stretch the confidence intervals for the point estimates. One possible solution for this potential problem is to estimate robust regression analysis (Yaffee, 2002). One way in which robust regression operates is by iteratively weighting the observations using the residuals from the previous regression. In this sense, if residuals are small the weights will approach to one, but with large residuals the weights approach to zero.

The results using linear regression analysis demonstrate that education inequality has a negative effect on this aggregate measurement of social cohesion. This effect is significant only at 10 percent (see Model 1 in Table 2). From Figure 1 we know about the presence of outliers in the relationship between social cohesion and education inequality, e.g. Norway and Germany. Robust regression analysis is used in order to overcome this difficulty. *Results from robust regression analysis confirm the negative linear impact of education inequality on social cohesion.* Specifically, a 0.1 change in education inequality, say from 1.2 to 1.3, will decrease the social cohesion index by -0.583 units (see Model 2 in Table 2).

A closer analysis of the results from robust linear regression verifies the presence of outliers in the relationship between social cohesion and education inequality. The weight assigned to Norway using robust regression equals zero and the weight for Germany equals 0.16. The weighting factors for the rest of the countries fluctuate between 0.81 for Denmark and 0.99 for Poland and the US. *Using this methodology for estimation, education inequality has a significant impact (using a 5 percent level of significance on the social cohesion index).*

[5] Linear regression will utilise White's (1980) corrected standard errors in the presence of heteroskedasticity.

Table 2: Regression Analysis for Social Cohesion Index

Variable	Model 1 Method OLS[(i)]	Model 2 Method RR[(ii)]	Model 3 Method OLS	Model 4 Method OLS
Constant	6.84	7.36	7.68	5.59
	(3.91)	(2.60)*	(2.07)*	(2.10)*
Education	-5.34	-5.83	-5.26	-5.53
Inequality	(2.85)**	(2.02)*	(1.96)*	(1.93)*
Income Inequality			-0.032	-0.042
			(0.041)	(0.047)
Log GNP				0.82
				(0.26)*
Education Level				-1.91
				(1.08)
No. Observations[(iii)]	15	15	13	13

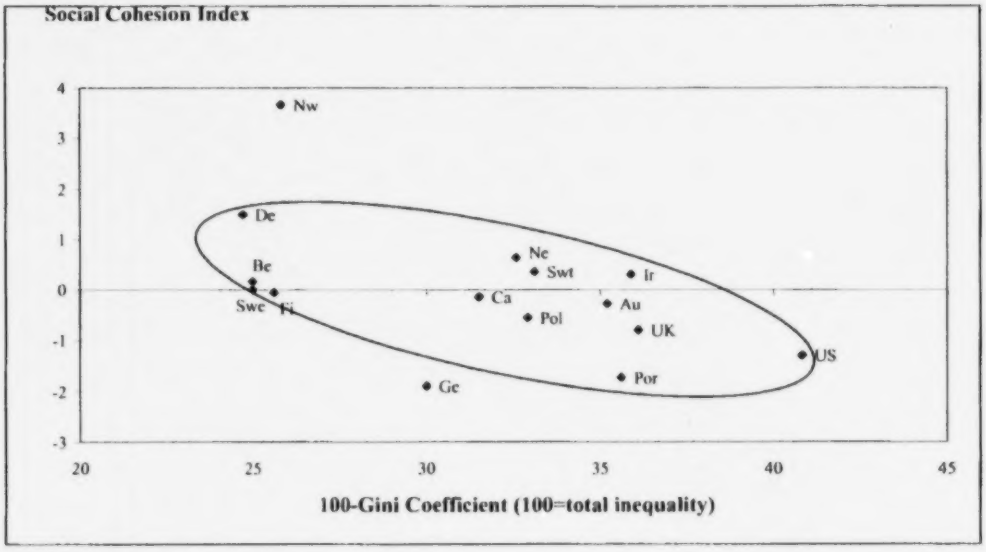
Note: Corrected Standard Errors in Parenthesis. (*) means significant at 5% level and (**) means significant at 10 % level. (i) Ordinary Least Squares estimation performed with White corrected standard errors; (ii) Robust Regression estimation using iteratively re-weighted least squares; (iii) For restricted sample, 13 observations, Norway and Germany were excluded.

2.6 Income Equality and Social Cohesion

The next stage in the model requires testing for an association between income inequality and social cohesion. Putnam (1993; 2000) found that income inequality and aggregate social capital correlated across regions in both Italy and the USA, although he made little analytical use of this empirical finding, consigning its mention to a footnote in 'Making Democracy Work'. Whether this applies at the national level and with the aggregate measure of social cohesion is yet to be seen. *Figure 2 shows that there is a negative relationship between income inequality and social cohesion. Once again, excluding Norway and Germany, a negative and significant correlation of -0.616 exists between these two variables.*[6]

[6] In this paper, income inequality is measured as 100 minus the Gini coefficient. This standardisation is used for analytical purposes only and therefore the reader should be aware on the interpretation of results.

Figure 2: Relationship between Social Cohesion and Income Inequality



2.7 Educational Inequality, Income Inequality and Social Cohesion

Multivariate analysis is used to examine social cohesion as a function of education inequality and income inequality (Model 3 in Table 2). The impact of income level is further explored, measured by the logarithm of the GNP, and education attainments, measured by the test scores for those who have attained upper secondary education (Model 4 in Table 2). For these two regressions the restricted sample is used with Norway and Germany excluded from the analysis. Interestingly, the relationship between income inequality and social cohesion has the expected sign, so does education inequality. *However, only education inequality has a significant linear negative impact on the social cohesion index.* In Model 4, countries with higher income have a positive linear relationship with the social cohesion index.[7] *The results show that there is a linear relationship between education inequality and the index of social cohesion that is not mediated by income.*

[7] The low number of degrees of freedom in the estimation is acknowledged. With 13 observations and 5 parameters in Model 4, there is only 6 degrees of freedom. Hence, the central limit theorem for unbiased estimator does not apply. This means that the point estimate for the relationship between education inequality and social cohesion may not be exactly -5.53 or -5.26, since this value is likely to be biased. However, the interesting outcome is that even with high standard errors the relationship between education inequality and social cohesion resulted significant, and even dominates the effects of income inequality, which is the answer to the initial hypothesis.

2.8 Education Inequality, Income and Trust

A recent study by Duthilleul and Ritzen (2002), building on two of the authors' original formulations (Green & Preston, 2001), found that there is also a positive linear relationship between education inequality and trust, a variable used to approximate social cohesion. They used a sample of 27 countries that were part of the PISA (Project of International Student Achievement) and linked their data to the WVS and World Bank data on income inequality. Here, a test is made to establish whether the index of trust, generated with two individual variables for trust using principal components, has a relationship with education inequality. This method departs from Duthilleul and Ritzen (2002) in several respects: this dependent variable for trust combines 2 single measures; IALS provides the information on school attainments for the adult populations (as opposed to PISA which is based on tests of 15 year olds); and education inequality is measured as a ratio rather than as the coefficient of variation.

Table 3: Ordinary Least Square, OLS,[(i)] Analysis for Trust Index

Variable	Model 1t	Model 2t	Model 3t
Constant	8.14 (2.91)*	8.63 (2.54)*	-0.59 (4.14)
Education Inequality	-6.35 (2.12)*	-7.04 (3.03)*	-6.52 (3.21)**
Income Inequality		0.010 (0.060)	0.015 (0.065)
Log GNP			0.43 (0.39)
Education Level			1.42 (1.54)
No. Observations[(ii)]	15	13	13

Note: Corrected Standard Errors in Parenthesis. (*) means significant at 5% level and (**) means significant at 10 % level. (i) Ordinary Least Squares estimation performed with White corrected standard errors; (ii) For restricted sample, 13 observations, Norway and Germany were excluded.

As in the study by Duthilleul and Ritzen (2002), education inequality has a negative linear relationship with the trust index. However, here this is the only variable in the sample that has a consistent negative impact on the trust index (see Table 3). Unlike Duthilleul and Ritzen (2002), income inequality is not found here to have a significant relationship with trust.

Strong cross-national correlations between education inequality and income equality (Nickel & Layard, 1998) and between income inequality and crime (Messner, 1982) and health (Wilkinson, 1996) make it tempting to suggest that any relationship between educational equality and social cohesion runs, at least in part, through income inequality. It is not possible to verify that here, probably due to the co-

linearity between education inequality and income inequality which overshadows the effect from income inequality.

However, what the results do suggest is that whatever the links through income equality, educational inequality also has effects independently on social cohesion. If this is the case it would not be surprising since one may assume that social cohesion can be affected by various education dependent social inequalities including those of status as well as income.

3. Conclusions and Further Research

The theoretical and quantitative analyses above leads to a number of tentative conclusions regarding the effects of education on social cohesion at the national level. *First, the measurement of social cohesion at the national level requires different combinations of indicators from those normally used in social capital analysis.* While association, trust, tolerance, civic co-operation and political engagement may form a coherent cluster of variables at the individual level in certain countries, they do not co-vary sufficiently at the national level to be considered measures of a single underlying phenomenon. In particular, associational membership would seem to work quite differently from other variables at the national level and appears to be a poor correlate of national social cohesion. It can be suggested, as indicated earlier, that this is because associational membership involves so many different types of social relations that have quite different effects in terms of social integration. Used purely quantitatively, membership has very little meaning in terms of cohesion at community or national levels. Whatever the salience of de Tocqueville's original (qualitative) argument about the importance of the vibrancy of community association for a strong civil society, quantitative approaches to this, which are unable to distinguish between narrow and self interested association and more encompassing and consensus building forms of association, are of little use in looking at modes of social integration in the modern world.

Second, there would appear to be a set of variables which do co-vary at the national level and which may form the basis for measurement of social cohesion. These include social and institutional trust from the original social capital measures and, additionally, measures of civic co-operation and violent crime. This report suggests that other conventional measures of societal cohesion and conflict – such as tolerance, national pride, rates of industrial conflict and incidents of inter-ethnic violence – need further testing and theoretical discussion before being included as positive or negative measures of social cohesion.

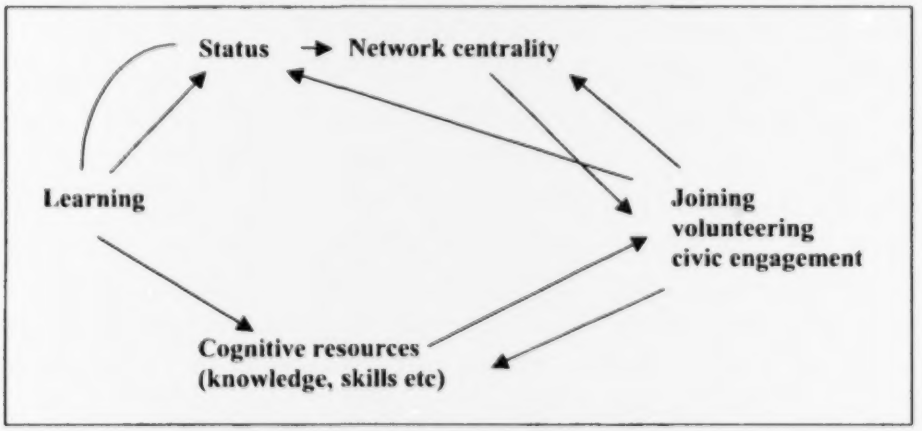
Third, there appears to be no significant correlation in the analysis at the national level between aggregate levels of education and social cohesion (see Table 3*)*. This would be consistent with the earlier argument that education effects may well be greatly outweighed by more powerful institutional and cultural factors at the national level. It would also be consistent with the argument that it is values rather than

average levels of skill which are mainly responsible for any absolute social cohesion effects. However, no definite claims for this are made here. Another study by Duthilleul and Ritzen (2002) does find a significant correlation between mean skills levels and trust. The discrepancy may be due to the fact that they use mean scores of 15 year olds in PISA which do not proxy well for mean skills of adults. However, the relationship clearly needs further investigation before conclusions can be drawn. Whatever the truth, in any case, education may still have an important effect through way in which it socialises young people, which is invisible in these crude measures of educational outcomes.

Fourth, inequality of educational outcomes, which is closely connected to income inequality, appears to have a significant effect on social cohesion, although causality may also run in the other direction.

It is quite probable that income equality impacts on educational equality through equalising access to education. It is also likely that social cohesion and solidaristic cultures and political ideologies promote both income equality and educational equality through equalising aspirations and supporting certain types of policy interventions. Minimum wages and other forms of labour market regulation that make wage agreements binding and inclusive for entire sectors may well, for instance, enhance income equality (Blau & Kahn, 1996; Nickell & Layard, 1988). Measures to equalise resources for, and admissions to, schools may make educational outcomes more equal, as may shared aspirations about the value of schooling, as has been argued in the case of the highly egalitarian Japanese education system (Green, 2000; OECD, 2001). These relationships remain to be investigated qualitatively, but the analysis here of correlations at least suggests that there is an issue to be explored.

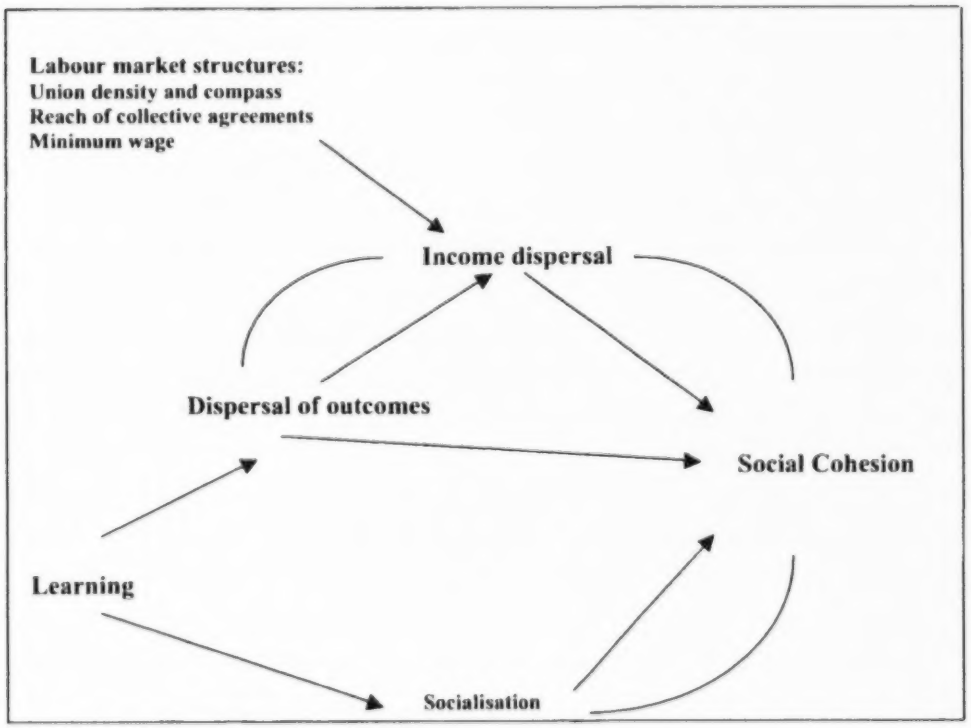
Figure 3: Learning effects on social capital (joining, volunteering and engagement)



(Adapted from Nie, Junn & Barry, 1996)

Existing models of education effects on social capital and civic participation (Bynner & Ashford, 1994; Nie et al, 1996; Emler & Frazer, 1999) suggest that education impacts on association and political engagement directly by conferring useful cognitive resources and indirectly by giving access to jobs which confer network centrality (as shown in Figure 3). The model here in no way contradicts this but rather seeks to explain educational impacts on a different kind of outcome – i.e. social cohesion. In this model skills and qualifications are still important, but it is mainly the way they are distributed which affects social cohesion. In addition to this, the possibility is posited, but not explored, that different forms of school socialisation may have differential impacts on social cohesion at the national level. The full hypothesised model is shown below in Figure 4.

Figure 4: Learning effects on social cohesion



The model sketched above clearly requires a great deal more testing and causal explanation than can be attempted here. However, this report recommends that this would be a worthwhile endeavour. If proved valid, this model of educational effects on social cohesion would have significant policy implications.

Current citizenship education policies in England (and some other English speaking countries) focus strongly on the development of social competences (Kerr, 1999; Osler & Starkey, 2000). This may well be beneficial for association and political

engagement, but may have rather less impact on trust, civic co-operation and social cohesion generally. To address these issues through education more attention would have to be placed on the development of shared or co-operative values and on the attenuation inequalities in educational outcomes. The latter may be a difficult task because, as the recent OECD PISA study shows (OECD, 2001), educational outcomes in the UK are amongst the most unequal in the OECD countries.

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Appendix: Derivation Of Country Level Indicators

As no one data set could satisfy the types of international comparisons required, a combined data set was constructed using data from the WVS, IALS, World Bank, Interpol statistics and the International Crime Victim Survey (ICVS). All data used was from the year 1995. A copy of the dataset and correlation matrices used in the analysis can be obtained from the authors. Fifteen countries were included in the core data set being Australia, Belgium, Britain, Canada, Denmark, Finland, Ireland, the Netherlands, Norway, Poland, Portugal, Sweden, Switzerland, the USA and Germany.

Social cohesion measures were obtained from the most recent country sweep available of the WVS. In most cases, data used was from the 1995-1997 sweep, although in the small number of cases when data for these years was not available, data from the 1990 sweep was substituted.

General Trust (GENTR) was measured by the percentage of individuals sampled in each country who agreed that most people could be trusted when asked:

"Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" (WVS question V27)

Trust in government (DEMTR) was measured by the percentage of individuals sampled in each country who agreed or strongly agreed that they had confidence in their parliament (WVS question V144).

Civic co-operation measures cheating on public transport fares (TRANCH) and cheating on taxes (TAXCH) were measured by the percentage of individuals in each country who stated that such actions were never justifiable (WVS questions V193 and V194).

The measure of educational inequality (P3) was obtained from IALS secondary data by dividing the mean prose score of those individuals who had completed tertiary education by the mean prose score of those who had completed upper secondary education only. To compute these scores, the most recent sweep of IALS data is utilised (IALS, 2000).

Measures of income inequality (GINI) and GNP per capita (GNPCAPIT) were taken from the most recently available World Bank Statistics (World Bank, 2001, 282-283) for the year 1996.

The measure of crime (CRIME) was obtained from Interpol statistics for 1996 (International Criminal Police Organisation, 1996). The measure of crime used being the sum of homicides, robberies and violent thefts per. 10,000 inhabitants.

Table A1: Social capital / cohesion aggregates for fifteen countries (main dataset)

COUNTRY	*ABBREV*	*GENTR*	*DEMTR*	*TAXCH*	*TRANCH*	*CRIME*	*GINI*	*So-Coh Score*
Norway	Nw	64.80	69.50	47.50	70.20	31.26	25.8	3.677
Denmark	Den	57.70	42.00	57.30	74.50	47.69	24.7	1.481
Sweden	Swe	56.60	44.60	49.30	47.00	85.38	25.0	-0.00066
Netherlands	Nl	55.80	51.60	42.90	55.80	121.46	32.6	0.642
Canada	Can	50.70	37.90	59.20	61.90	109.21	31.5	-0.121
Finland	Fin	46.90	32.40	57.40	62.60	45.42	25.6	-0.041
Ireland	Irl	46.80	50.30	48.80	57.50	96.88	35.9	0.309
Germany	D	41.80	29.40	40.10	38.60	86.92	30.0	-1.884
Australia	Au	39.90	30.60	62.10	62.80	37.38	35.2	-0.268
Switzerland	Sz	37.80	43.90	53.70	59.30	34.40	33.1	0.374
USA	US	35.00	30.30	73.60	66.50	209.85	40.8	-1.279
Poland	Po	34.50	34.50	55.20	68.10	71.04	32.9	-0.540
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WIDER BENEFITS OF LEARNING RESEARCH REPORT NO. 7

Education, Equity and Social Cohesion: A Distributional Model

This report – the first from the Centre's comparative strand of research – focuses on the effects of education on social cohesion at the societal level. The research involved two elements. The first was a theoretical analysis and critique of models in the existing international and comparative literature on education, social capital and social cohesion. This led to the development of a new hypothetical model relating skills distribution to social cohesion. The second part of the research used cross-national, quantitative techniques to test the model on aggregated data for 15 countries. The analysis suggests that educational distribution may be a very significant influence on societal cohesion in certain contexts. Improving levels of education alone may not foster social solidarity if inequalities of skill and income persist.

The findings here have important policy implications. Existing policies focus on developing the individual resources and competences which will help to build social capital and community cohesion. However, these will not necessarily impact on cohesion at the societal level. Creating a more cohesive society is likely to require policies that are also designed to increase equality through narrowing educational outcomes.

Professor Andy Green is Co-Director of the Centre for Research on the Wider Benefits of Learning and Professor of Education in the School of Lifelong Learning and International Development in the Institute of Education.

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